

Proposal Reviews

#203: Improved Fish Screen Design and Operation for Native Sacramento-San Joaquin Watershed Fishes

University of California, Davis

Final Selection Panel Review

Initial Selection Panel Review

Research and Restoration Technical Panel Review

Bay Regional Review

Delta Regional Review

San Joaquin Regional Review

Sacramento Regional Review

External Scientific Review

#1
#2

Prior Performance/Next Phase Funding

#1
#2
#3

Environmental Compliance

Budget

Final Selection Panel Review:

CALFED Bay-Delta 2002 ERP PSP Final Selection Panel Review

Proposal Number: 203

Applicant Organization: University of California, Davis

Proposal Title: Improved Fish Screen Design and Operation for Native Sacramento-San Joaquin Watershed Fishes

Please provide an overall evaluation rating.

Fund	
As Is	-
In Part	-
With Conditions	-
Consider as Directed Action	X
Not Recommended	-

Amount: **\$2,243,794**

Conditions, if any, of approval (if there are no conditions, please put "None"):

None

Provide a brief explanation of your rating:

The Selection Panel considered the comments provided by the Principal Investigator, who argued that the proposal was unfairly ranked, and from the National Marine Fisheries Service, which emphasized this fish treadmill research's importance to development of Delta Fish Facilities.

In response to those comments the Selection Panel decided to recommend the proposal as a potential directed action. The rewritten proposal should: 1) Incorporate the appendices and make full use of the opportunity to provide a proposal that meets the Solitation Package's proposal guidelines. 2) Justify the funding and staffing levels, specifically the need for four post doctoral fellows. (Can four post docs really work full time on the treadmill?) 3) Consult and coordinate with CALFED's Science and Ecosystem Restoration Programs and include a proposal briefing to clarify concerns and relate the need and relationship of the proposal to the Tracy Fish Test Facility.

The proposal's relationship to the need for baseline data relevant to the testing needs of the Tracy Fish Test Facility was compelling to the decision to rank the proposal "Consider as a Directed Action", provided the conditions identified above can be satisfied, rather than its initial "Do Not Consider Further" recommendation.

Initial Selection Panel Review:

CALFED Bay-Delta 2002 ERP PSP Initial Selection Panel Review

Proposal Number: 203

Applicant Organization: University of California, Davis

Proposal Title: Improved Fish Screen Design and Operation for Native Sacramento-San Joaquin Watershed Fishes

Please provide an overall evaluation rating.

Explanation of Recommendation Categories: Fund

- **As Is** (a proposal recommended for funding as proposed)
- **In Part** (a proposal for which partial funding is recommended for selected project phases or components)
- **With Conditions** (a proposal for which funds are recommended if the applicant contractually agrees to meet the specified conditions)

Consider as Directed Action in Annual Workplan (a proposal addressing a high priority action that requires some revision followed by additional review prior to being recommended for funding)

Not Recommended (a proposal not currently recommended for funding-after revision may be considered in the future)

Note on "Amount":

For proposals recommended as Fund As Is, Fund In Part or Fund With Conditions, the dollar amount is the amount recommended by the Selection Panel.

For proposals recommended as Consider as Directed Action in Annual Workplan, the dollar amount is the amount requested by the applicant(s).

Fund	
As Is	-
In Part	-
With Conditions	-
Consider as Directed Action	-
Not Recommended	X

Amount: **\$0**

Conditions, if any, of approval (if there are no conditions, please put "None"):

None

Provide a brief explanation of your rating:

This proposal is to continue laboratory-based efforts to develop information that can be used to improved fish screen design and operation. CALFED and others have made substantial investments in this effort over the last several years. The proposal received an adequate rating from the technical review panel, where reviewers identified concerns with that essentially questioned the adequacy of the proposal as written. The technical review panel did not find the ongoing nature of the proposed work to be a compelling reason to continue funding. The Selection Panel concluded that work completed to this point should be more fully assessed prior to any decision to continue funding the effort. The Selection Panel does not recommend funding for this proposal.

Research and Restoration Technical Panel Review:

CALFED Bay-Delta 2002 ERP PSP Research and Restoration Technical Panel Review Form

Proposal Number: 203

Applicant Organization: University of California, Davis

Proposal Title: Improved Fish Screen Design and Operation for Native Sacramento-San Joaquin Watershed Fishes

Review:

Please provide an overall evaluation summary rating:

Superior: outstanding in all respects;

Above Average: Quality proposal, medium or high regional value, and no significant administrative concerns;

Adequate: No serious deficiencies, no significant regional impediments, and no significant administrative concerns;

Not Recommended: Serious deficiencies, significant regional impediments or significant administrative concerns.

Overall Evaluation Summary Rating	Provide a brief explanation of your summary rating
-Superior	The review panel ranked the proposal only adequate and did not find the ongoing status of the proposal a compelling justification. Although UC Davis may be the only location with facilities to address fish performance and screen design, the project seems relatively expensive for laboratory experiments. If the need for fish screen criteria is urgent enough to justify continued research, then this proposal should be revised in the fashion of a typical science proposal with an explicit justification, experimental conditions, etc. Also, the proposal should demonstrate how the products will meet specific fish screen design needs. If more definitive and applied experiments can be conducted at the Tracy Test Facility in the future, then CALFED should consider reducing the scope of this proposal.
-Above average	
XAdequate	
-Not recommended	

1. **Goals and Justification.** Does the proposal present a clear statement of goals, objectives and hypotheses? Does the proposal present a clear justification and conceptual model for the project?

The applicant proposes two sets of experiments they believe will improve fish screen design and operation. The type of screens was not specifically described. The applicants request next phase funding to redirect our efforts toward those environmental and biological factors now known to significantly affect fish responses near fish screens. Hypotheses for experiments were not explicitly stated in the proposal. However, the review panel believes a clear statement of hypotheses is a reasonable expectation for laboratory experiments with prior results available. The panel did not consider continuation of ongoing treadmill studies an adequate justification. The conceptual model did not support the review because, unlike

other proposals, the figure did not readily print from the www.

2. **Likelihood of Success (Approach, Feasibility, Capabilities and Performance Measures).** Is the project likely to succeed based on the approach, feasibility and project team capabilities? Are the proposed performance measures adequate for measuring the project's success?

The applicants used about three pages of text to describe the problem, justification, approach, and feasibility. In this proposal, the sections were generally lacking in detail and substance. Another project ranked superior by the panel used about 19 pages to provide the appropriate level of detail and justification. Although experimental variables presented in Table 2 were of interest to reviewers, the narrative to explain the fish treadmill experiments was not adequate. Much detail was provided in the appendices, but that detail was not an acceptable substitute for an explanation of the approach, experimental design, and analyses. The applicants state The experimental approach, design, methods, and analyses have been subjected to rigorous discussion and review. This statement of past events does not exempt the applicants from participating in this review and the panel is generally disappointed with this attitude toward the review process. The qualifications and capabilities of the team are excellent.

3. **Outcomes and Products.** Will the project advance the state of scientific knowledge in general and/or make an important contribution to the state of knowledge of the Bay-Delta Watershed? For restoration proposals, is the project likely to contribute to ecosystem restoration or species recoveries in a significant way? Will the project produce products useful to decision-makers and scientists?

The information is likely to be of use in designing or modifying screen systems. Unlike many applicants who submit their proposals as research projects, but avoid any commitment to publish in peer reviewed journals, the applicants have a good record of publishing that they are committed to continuing. Several reviewers, including the San Joaquin Regional Review, expressed concern that more effort should be made to provide the results to the engineers designing the screens and the fisheries agencies determining the criteria. It was not clear why a treadmill is used rather than testing prototype screens based on the most current designs by engineers.

4. **Cost/Benefit Comments.** Is the budget reasonable and adequate for the work proposed?

The total of \$1,723,435 (state funded) and \$2,243,794 (federal funds) was requested for a two year performance period. The proposed studies are relatively costly for laboratory experiments without a compelling justification. Although experimental facilities and protocols are available, the project appears to have high fixed costs. The proposal does not explain why operation and maintenance of the fish treadmill is so expensive. The budget led the panel to question the number of hours paid to senior level staff on the project.

5. **Regional Review.** How did the regional panel(s) rank the proposal (High, Medium, Low)? Did the regional panel(s) identify significant benefits (regional priorities, linkages with other activities, local involvement) or impediments (local constraints, conflicts with other activities, lack of local involvement) to this proposal? What were they?

The regional reviews ranked the proposal low, medium, high, and medium. The low rank was returned from the Bay Regional Review because that regional panel does not have compelling screening needs. Another interesting comment from the Delta Regional Review was that the proposal was submitted to the IEP but did not receive funding. An external reviewer rated the proposal excellent because of high expectations that the results will be useful to engineers to design better fish screens.

6. **Administrative Review.** Were there significant concerns about the proposal with regard to the prior performance, environmental compliance and budget administrative reviews? What were they?

The Prior Performance review indicated the UC Davis has been very difficult to deal with concerning fiscal documentation.

Miscellaneous comments:

None

Bay Regional Review:

Proposal Number: 203

Applicant Organization: University of California, Davis

Proposal Title: Improved Fish Screen Design and Operation for Native Sacramento-San Joaquin Watershed Fishes

Overall Ranking: **X**Low -Medium -High

Provide a brief summary explanation of the committee's ranking:

While very relevant to the Delta region, this work is lower in priority for the Bay/Suisun region than other projects.

1. Is the project feasible based on local constraints?

XYes -No

How?

Part of a multi-phase CalFed project. PI's have excellent qualifications.

2. Does the project pursue the restoration priorities applicable to the region as outlined in the PSP?

XYes -No

How?

Extensive linkages to CalFed goals (1,3,) PSP priorities MR-6, SR-2,6,7 DR-7 and CVPIA goals

3. Is the project adequately linked with other restoration activities in the region, such as ongoing implementation projects and regional planning efforts?

XYes -No

How?

Results of previous work already being utilized. This phase provides additional information for development and management of fish passage facilities - especially with respect to debris.

4. Does the project adequately involve local people and institutions?

XYes -No

How?

.

Other Comments:

Low ranking is relative to other proposals with more direct connectivity to the San Pablo/Suisun region and not an indication of the lack of relevance, need, or scientific quality of this effort to other regions.

Delta Regional Review:

Proposal Number: 203

Proposal Title: Improved Fish Screen Design and Operation for Native Sacramento-San Joaquin Watershed Fishes

Overall Ranking: -Low **XMedium** -High

Provide a brief summary explanation of the committee's ranking:

These academic studies are useful, however, they are extremely research oriented and were not given a high priority because of the weak applicability to management actions.

1. Is the project feasible based on local constraints?

XYes -No

How?

This proposed research is not dependant on the completion or status of other projects as it uses the Fish Treadmill apparatus on the U.C. Davis campus, however, it is dependant on splittail and delta smelt captures in the IEP sampling program. Splittail and delta smelt intend to be collected by the IEP Delta Smelt Program and the federal and state facilities, both of which have ongoing permits. Field sampling may be hampered slightly due to weather, however, the facilities and rearing programs should fill any gaps in supply if needed. Previous studies by this group have established a long recorded history of teamwork with these agencies, however, recent cooperation with IEP has crumbled a bit. Joe submitted a proposal for this work to IEP but did not get funded. Now he is submitting this to CALFED and depending on IEP to get the fish. IEP will not be covering delta smelt take. Proposal did not indicate who will be acquiring the take permit.

Salmonids will be supplied by federal and state hatcheries. Though no letters of support were found, numbers needed are very small making the acquisition of salmonids relatively simple.

White and green sturgeon will be supplied from rearing programs at UC Davis which have successfully reared sturgeon in the past.

This project builds on previous research and attempts to further knowledge of fish screen design. This work is being proposed by highly qualified researchers with previous experience and significant publication records.

2. Does the project pursue the restoration priorities applicable to the region as outlined in the PSP?

XYes -No

How?

ERP Stage 1 Priorities - This project addresses multi-regional priority 6 (Ensure at-risk species' recovery by developing conceptual understanding and models that cross regions) and Delta priority 7 (Protect at-risk species using water management + regulatory options). This research will assist in estimating the impacts of fish screens on several species of fish at a multi-regional level helping fill the gaps for models. In addition, this research will assist with the construction of future screen projects.

CVPIA Priorities This research will address priorities 3402a, b, and c of the Central Valley Project Improvement Act. Because this is research, it takes a slightly lower priority than work that can be immediately implemented, however, the potentially far-reaching benefits in the future should not be overlooked. Also relates to 3406(b)(1) which authorizes the AFRP to make all reasonable efforts to double anadromous fish by 2002.

3. Is the project adequately linked with other restoration activities in the region, such as ongoing implementation projects and regional planning efforts?

XYes -No

How?

This study builds upon research done by Department of Fish and Game in the early 1980s. Results of previously funded CALFED and CVPIA AFSP work by these investigators have been used to help guide the development and design of the experimental Tracy Fish Test Facility. In addition, these studies will assist in further refinements to the CVP and SWP pumping plants as well as the development of the proposed Through-Delta Fish Facility. The significant publication record and presentation history of this work makes it available to many parties.

4. Does the project adequately involve local people and institutions?

XYes -No

How?

The principal investigators of this work have done an excellent job publishing and presenting their results in the past, having published dozens of articles in a variety of peer reviewed and non-peer reviewed journals and made presentations at the American Fisheries Society meetings, IEP annual meetings, etc. They have been integrally involved with the Interagency Ecological Study Program (Central Valley Fish Facilities Review Team, Delta Smelt Project).

Other Comments:

Excellent proposal including quality control and quality assurance protocols as well as detailed data analysis description.

This is the only project of its kind and has been very academic with a significant publication record. This information must remain usable by management agencies for the benefit of the Sacramento-San Joaquin Estuary.

Some concerns from the panel about the design of the treadmill, such as the location of the cement wall.

San Joaquin Regional Review:

Proposal Number: 203

Applicant Organization: University of California, Davis

Proposal Title: Improved Fish Screen Design and Operation for Native Sacramento-San Joaquin Watershed Fishes

Overall Ranking: -Low -Medium **XHigh**

Provide a brief summary explanation of the committee's ranking:

The project should receive continual funding and probably not be required to go through the PSP process.

Considering the large amounts of money being spent or planned to be spent on screens, it is imperative to determine the most effective design.

Whether this data is getting to engineers and those that are involved in screen design and placement was a worry of the committee.

1. Is the project feasible based on local constraints?

XYes -No

How?

Since this is a continuation and refinement of previous research using the Treadmill at UC Davis, there don't appear to be any adverse local constraints to this project. The Fish Treadmill project is an ongoing, multi-agency research program that has been in effect for several years. The treadmill has been built and functioning well for several years. Collection and holding techniques of native fishes has been well established by the research team, and experimental protocols also established.

2. Does the project pursue the restoration priorities applicable to the region as outlined in the PSP?

XYes -No

How?

SJ-3: Improve rearing and spawning habitat and downstream fish passage on tributary streams and the main stem San Joaquin River. Fish screens. This project will continue and enhance ongoing fish screen projects. As the only operational experimental platform for fish screen studies, the treadmill studies are identified by CALFED, CVPIA Anadromous Fish Screen Program (AFSP) and CVFFRT as essential to inform and guide CALFED-sponsored retrofits and replacements of existing fish screens at CVP and SWP, as well as other fish screen projects.

MR-6: Ensure recovery of at-risk species by developing conceptual understanding and models that cross multiple regions. Results of this project are particularly relevant to salmonid fishes that utilize wide ranges of habitat within the watershed at different life stages (ie differences in the responses of parr and smolts to screened water diversions).

SR-2: Restore fish habitat and fish passage particularly for spring-run Chinook salmon and steelhead trout and conduct passage studies. These studies directly address downstream passage past screened water diversions. Also, results can address the effectiveness of proposed screening for fish protection.

SR-6: Continue major fish screen projects and conduct studies to improve knowledge of implications to fish screen for fish populations. This project is the only experimental platform for fish screen studies.

SR-7: Develop conceptual models to support restoration of river, stream and riparian habitat. The project will provide information on life histories, needs and responses to restoration (ie fish screens) for steelhead, Chinook salmon, delta smelt, splittail, and sturgeon.

DR-7: Protect at-risk species in the Delta using water management and regulatory approaches. The project objective is to provide scientifically based comprehensive information to improve design and operation of screened water diversions in the delta.

3. Is the project adequately linked with other restoration activities in the region, such as ongoing implementation projects and regional planning efforts?

XYes -No

How?

The results of the proposed project, when applied to improving fish screen designs, will reduce the negative impacts of water diversions. It will continue and expand on a research program previously supported by DWR and USBR to design, build and conduct preliminary studies in the treadmill, as well as previous CALFED funding for further studies utilizing the treadmill.

Results of previous work are being applied to guide development of the physical design and planned experimental program of the Tracy Fish Test Facility. Results have been identified as critical to inform further development of planned improvements to fish screens and facilities at CVP and SWP, as well as CALFED's proposed Through-Delta Facility.

The proposed program will examine 1) alternative approaches to facilitate fish passage, and 2) examine the effects of suboptimal fish screen flow conditions related to debris, a serious concern in both riverine and Delta regions on fish performance and behavior.

4. Does the project adequately involve local people and institutions?

XYes -No

How?

The Fish Treadmill Project is a continuing project based at UC Davis utilizing university faculty and staff as well as Stockton based DFG personnel. All required notifications and approvals to UC Davis, local governments, landowners, environmental groups, and other interested parties have been in place from previous studies. Outreach is through periodic workshops, workgroup meetings, and scientific meetings, IEP Newsletter articles, journal articles in scientific and technical press. Joe Cech's group has always articulated their research in many different forums.

Other Comments:

The Treadmill Project has been very useful in determining responses of different fish species to varying flows and approach velocities at a screen. Continuing this research to gain data necessary to evaluate and improve aspects of fish screen design and operations is critical to successfully implementing changes in CVP and SWP screens as well as the proposed Through-Delta Facility. CALFED has a large number of proposals regarding the placement of fish screens on diversions, most of which have inadequate justification or monitoring. This facility is the only facility that has the capability to effectively experiment with different designs under varying conditions (light, temps, flows) with a wide range of species.

The committee would like to see more outreach to engineers. It is recognized that Joe Cech and his group do a splendid job at publishing and presenting their results from these important studies, but we wondered if the information was getting to the designers of screens.

We would also like seeing more pooling of resources with NMFS and their facility.

Sacramento Regional Review:

Proposal Number: 203

Applicant Organization: University of California, Davis

Proposal Title: Improved Fish Screen Design and Operation for Native Sacramento-San Joaquin Watershed Fishes

Overall Ranking: -Low ☒Medium -High

Provide a brief summary explanation of the committee's ranking:

The panel felt this is a continuation of important work which is critical to fish screen implementation. However, the panel was concerned that results are not directly applicable to fish screen design and need to be more focused in that direction. Additionally, past study results have not been available in a timely manner.

1. Is the project feasible based on local constraints?

☒Yes -No

How?

Proposal is follow-on to previous CALFED funded study. Study results have identified issues surrounding varying species-specific responses to passing and through screen velocities. These responses will be investigated in greater detail to include debris loading and varying physical parameters including temp. etc. Possible weakness is the size of test fish which for salmonids are >6 cm. Research should either focus upon weakest stage or test all size stages. Of the species proposed for investigation, splittail, sturgeon, and salmonids, all are exposed as fry or larvae in the upper Sac. River to large diversions at times of high debris and temp.

2. Does the project pursue the restoration priorities applicable to the region as outlined in the PSP?

☒Yes -No

How?

Proposal is directly applicable to Restoration Priorities for the Sacramento Region #6, "Continue major fish screen projects and conduct studies to improve knowledge of implications of fish screens for fish populations", and Restoration Priorities for Multi-Region Bay-Delta Areas #6, Ensure recovery of at-risk species by developing conceptual understanding and models of processes that cross multiple regions.

Proposal is follow-on to previously funded CALFED proposal investigating various species response to fish screens. This is extremely important to entire CALFED project area due to the numbers of diversions. Previous research has focused mainly on salmonids, which current studies are revealing may not be representative of other native species.

3. Is the project adequately linked with other restoration activities in the region, such as ongoing implementation projects and regional planning efforts?

☒Yes -No

How?

Project is closely coordinated with resource responsible agencies, and is critical to fish screen implementation throughout the entire Central Valley. The numbers of unscreened diversions and ultimate cost are of major concern. Additionally, most current fish screen design is based upon salmonid criteria and in general has not taken into account other native species. This proposal is critical to addressing these concerns; although the size of fish being evaluated is not representative of the most sensitive stages of any of the species.

4. Does the project adequately involve local people and institutions?

☒Yes -No

How?

Project is closely coordinated with responsible resource agencies, which have in turn coordinated with local people and institutions.

Other Comments:

Project is important continuation of previous CALFED funded project, but should focus attention upon smallest life stages of fish species being tested. Of the species proposed for investigation, splittail, sturgeon, and salmonids, all are exposed as fry or larvae in the upper Sac. River to large diversions at times of high debris and temp.

External Scientific: #1

Research and Restoration External Scientific Review Form

Proposal Number: 203

Applicant Organization: University of California, Davis

Proposal Title: **Improved Fish Screen Design and Operation for Native Sacramento-San Joaquin Watershed Fishes**

Conflict of Interest Statements:

I have no financial interest in this proposal.

☒Correct

☐Incorrect

In the blank below please explain any connection to proposal, to applicant, co-applicant or subcontractor or to submitting institution (write "none" if no connection):

None

Review:

Please provide an overall evaluation summary rating:

Excellent: outstanding in all respects;

Good: quality but some deficiencies;

Poor: serious deficiencies.

Overall Evaluation Summary Rating	Provide a brief explanation of your summary rating
-Excellent	The research that might be carried out under the auspices of this project might be good, but the proposal is a sloppy and unpersuasive document. Attachment of a previously produced progress report is not an adequate substitute for a concise research proposal and I did not feel obliged to consult that material in order to form a justified opinion about this work. Cech should take a year off and submit a first class proposal if he wishes to ask for nearly \$1 million per year.
-Good	
XPoor	

1. **Goals.** Are the goals, objectives and hypotheses clearly stated and internally consistent? Is the concept timely and important?

I thought this proposal did a relatively poor job on explaining goals, objectives and hypotheses of the research proposed. Indeed, there seem not to be many hypotheses presented. Instead this is basically a continuation of ongoing treadmill studies.

2. **Justification.** Is the study justified relative to existing knowledge? Is a conceptual model clearly stated in the proposal and does it explain the underlying basis for the proposed work? Is the selection of research, pilot or demonstration project, or a full-scale implementation project justified?

Some justification for the proposed research was presented and it does seem logical that operation of diversion screens would not be simultaneously good for all species at all locations. Operation and design of fish screens may logically be species-dependent.

3. **Approach.** Is the approach well designed and appropriate for meeting the objectives of the project? Are results likely to add to the base of knowledge? Is the project likely to generate novel information, methodology or approaches? Will the information ultimately be useful to decision-makers?

I guess that use of Cechs treadmills is the correct approach to these problems, but as he did not present alternatives I cannot just merits of this work.

Figure 1 in my personal hardcopy and in the review panels reference copy of the proposal was blank (thereby diminishing my ability to evaluate the conceptual model shown on that page); Table 2 was either not included or was not appropriately labeled, and the table of proposed study measurements (Table 3) was presented without motivation or justification. It is therefore impossible to conclude that the approach to be used is well designed, etc..

4. **Feasibility.** Is the approach fully documented and technically feasible? What is the likelihood of success? Is the scale of the project consistent with the objectives?

Based on previous development and successful use of the treadmill facilities one might reasonably guess that more successful studies could be carried out for a large number (perhaps infinite?) of fish species.

If success of this project is measured by whether or not certain measurements are taken over the course of the treadmill experiments, then success is likely. If instead success is measured by useful inferences that might be drawn from the experiments, it is impossible to judge likely success based on information presented in the proposal.

Instead of preparing a real proposal for a two year \$1.8 million project, Cech appears instead to have merely attached project status reports submitted to CALFED. These documents are by no means equivalent to a research proposal.

5. **Project-Specific Performance Measures.** Does the project include appropriate performance measures to measure success relative to the project's goals and objectives? Is there enough detail as to how the performance measures will be quantified? For restoration projects, are monitoring plans explicit and detailed enough to determine if performance measures will be adequately assessed?

Products and Performance Measures are assumed equivalent to one another in this proposal. Quarterly reports, technical reports, presentations at meetings, etc..

6. **Products.** Are products of value likely from the project? Specifically for restoration projects, are products of value also likely from the monitoring component? Are interpretative outcomes likely from the project?

See 5.

7. **Capabilities.** What is the track record of applicants in terms of past projects? Is the project team qualified to efficiently and effectively implement the proposed project? Do they have available the infrastructure and other aspects of support necessary to accomplish the project?

Project personnel appear well qualified to carry out studies and students can presumably collect millions of useful (?) measurements.

8. **Cost/Benefit Comments.** Is the budget reasonable and adequate for the work proposed?

Hugely expensive but without compelling justification of just why this kind of research continues to cost so much given that facilities and technology appears to have been previously worked out.

Miscellaneous comments:

External Scientific: #2

Research and Restoration External Scientific Review Form

Proposal Number: 203

Applicant Organization: University of California, Davis

Proposal Title: **Improved Fish Screen Design and Operation for Native Sacramento-San Joaquin Watershed Fishes**

Conflict of Interest Statements:

I have no financial interest in this proposal.

☒Correct

☐Incorrect

In the blank below please explain any connection to proposal, to applicant, co-applicant or subcontractor or to submitting institution (write "none" if no connection):

None

Review:

Please provide an overall evaluation summary rating:

Excellent: outstanding in all respects;

Good: quality but some deficiencies;

Poor: serious deficiencies.

Overall Evaluation Summary Rating	Provide a brief explanation of your summary rating
<input checked="" type="checkbox"/> Excellent	I would rate this project as excellent. I have some minor concerns about some of the costs associated with the project, however, this project provides basic, highly important information needed by those individuals trying to build screens that provide protection for listed fish species while at the same time providing needed water for irrigation, industrial and municipal uses. Nowhere else in the realm of fisheries restoration work do you find the win-win situation better than the construction of fish screening facilities, and this project provides some of the basic information needed to carry on that work.
<input type="checkbox"/> Good	
<input type="checkbox"/> Poor	

1. **Goals.** Are the goals, objectives and hypotheses clearly stated and internally consistent? Is the concept timely and important?

The goals, objectives and hypotheses are clearly stated and internally consistent. However, the title is somewhat misleading. This project is a research project directed at discovering appropriate flow conditions for Delta fishes encountering a screen facility. The title implies that the project is testing a specific screen design. This does not distract from the timelines and importance of the type of research being proposed. For agencies, water users and individuals attempting to design fish screening facilities there is minimal research available

on appropriate flow conditions and design criteria for even salmonid species let alone other non-game fishes.

2. **Justification.** Is the study justified relative to existing knowledge? Is a conceptual model clearly stated in the proposal and does it explain the underlying basis for the proposed work? Is the selection of research, pilot or demonstration project, or a full-scale implementation project justified?

This study is justified relative to the existing knowledge on fish screen flow conditions. Especially for species other than salmonids there is very little knowledge about what types of flow conditions will safely pass individual fish past a water diversion project. As the fish treadmill project has shown in previous studies, it is imperative to study the behavior of each fish species that are to be protected at water diversions, not just sustained and burst speed capabilities of the species since behavior of the species when encountering a screen can be very different for each species regardless of swimming abilities of the species. This research is justified in that those attempting to design fish protection facilities currently need the knowledge that this project will produce.

3. **Approach.** Is the approach well designed and appropriate for meeting the objectives of the project? Are results likely to add to the base of knowledge? Is the project likely to generate novel information, methodology or approaches? Will the information ultimately be useful to decision-makers?

As the applicants have shown in previous work, the approach is appropriate and well designed for meeting the objectives of the project. This work will provide highly needed basic behavioral information for Delta fishes that is currently needed by decision-makers. This facility is currently the only facility that can provide this type of information, and it currently exists and therefor would not need to incur substantial development costs.

It is not clear however from the proposal as to how the project determined what parameters to test. As I have stated, there is a critical need for design criteria for fish screening structures, especially related to fish species other than salmonids. Hence, there needs to be a link between the applicants and the fisheries agencies that are responsible for determining what criteria a screening facility will need to comply with. This communication is probably taking place, but is not readily apparent in the proposal.

4. **Feasibility.** Is the approach fully documented and technically feasible? What is the likelihood of success? Is the scale of the project consistent with the objectives?

I believe that the approach is fully documented and technically feasible as has been shown by this facility previously. The scale of the project is consistent with the objectives. This is a very large laboratory experiment and the best test facility anywhere for conducting this type of research. The applicants have assembled the needed equipment and personnel to conduct this research and have proven their effectiveness in measuring these type of fish behavior parameters in past work.

5. **Project-Specific Performance Measures.** Does the project include appropriate performance measures to measure success relative to the project's goals and objectives? Is there enough detail as to how the performance measures will be quantified? For restoration projects, are monitoring plans explicit and detailed enough to determine if performance measures will be adequately assessed?

The project is very specific on the parameters that it intends to test, and as indicated previously the project has the performance history to show that there is a high degree of likelihood that it will be able to successfully meet the goals and objectives as outlined in the proposal.

6. **Products.** Are products of value likely from the project? Specifically for restoration projects, are products of value also likely from the monitoring component? Are interpretative outcomes likely from the project?

The products of this project are the information developed and the reports generated that summarize this information. The project has done a good job in the past at reporting their findings in report and presentation form. This information is very important outside the Northern California area as well, and while outside the scope of the CalFed Program it is a benefit that this information is being shared widely.

7. **Capabilities.** What is the track record of applicants in terms of past projects? Is the project team qualified to efficiently and effectively implement the proposed project? Do they have available the infrastructure and other aspects of support necessary to accomplish the project?

The applicants have a proven track record of performing this type of research as indicated by the appendices that are attached to the proposal. They have put together a highly qualified team of experts to perform this research. The infrastructure (the treadmill) has been constructed, and successfully used on this type of research previously. The fact that the infrastructure has already been constructed is what makes this project feasible.

8. **Cost/Benefit Comments.** Is the budget reasonable and adequate for the work proposed?

If I have a problem with any aspect of the proposal it is the high cost of the project. While the research being performed by the project is very important and needed to construct fish friendly screening structures, it is difficult to justify some of the costs of the project. While the very high (48.5%) University indirect costs are probably not something that this project has any control over, it is unsettling. In comparison the indirect costs for the CDF&G is only 10%. Maybe more of the project needs to be performed using the state. Another area of concern is the graduate student tuition remissions. Is this something that the CalFed Program should be providing? If hiring assistants to perform the work involved in the project requires that the project pays salaries and provides student fee remissions then possibly the project should be hiring outside assistants.

Miscellaneous comments:

This project will provide very important information to fisheries agencies and water users wishing to design fish protection facilities at area water diversions. This is the only facility of its kind doing this type of research and it is important for this work to continue. I would like to see this type of research extended for other types of screen facilities, especially horizontal plate screens. The information obtained by this work will be very applicable to current work being undertaken to screen irrigation diversions in the Delta and Sacramento and San Joaquin Rivers.

Prior Performance/Next Phase Funding: #1

New Proposal Number: 203

New Proposal Title: Improved Fish Screen Design and Operation for Native Sacramento-San Joaquin Watershed Fishes

1. Prior CALFED project numbers, titles, and programs: *(list only projects for which you are the contract manager)*
2. Prior CVPIA project numbers, titles, and programs: *(list only projects for which you are the contract manager)*

#114201J075

3. Have negotiations about contracts or contract amendments with this applicant proceeded smoothly, without persistent difficulties related to standard contract terms and conditions?

XYes -No -N/A

If no, please explain any difficulties:

4. Are the status, progress, and accomplishments of the applicant's current CALFED or CVPIA project(s) accurately stated?

XYes -No -N/A

If no, please explain any inaccuracies:

5. Is the applicant's progress towards these project(s)' milestones and outcomes to date satisfactory?

XYes -No -N/A

If no, please explain deficiencies:

6. Is the applicant's reporting, records keeping, and financial management of these projects satisfactory?

XYes -No -N/A

If no, please explain deficiencies:

7. Will the project(s) be ready for next phase funding in 2002, based on its current progress and expenditure rates?

XYes -No -N/A

If no, please explain:

Maybe The applicant has a Cooperative Agreement for \$1,278,000 from the US Fish and Wildlife Service through 12/31/02 to complete ongoing biological experiments, fish screen research, and accompanying reports. Through 12/31/01, UC Davis has charged \$315,424.38 of this total amount. The applicability of this next-phase funding applied for may be contingent on the findings and schedules of deliverables of the current phase.

Other Comments:

Prior Performance/Next Phase Funding: #2

New Proposal Number: 203

New Proposal Title: Improved Fish Screen Design and Operation for Native Sacramento-San Joaquin Watershed Fishes

1. Prior CALFED project numbers, titles, and programs: *(list only projects for which you are the contract manager)*

ERP 99-N02 - Fish Treadmill Developed Fish Screen Criteria for Native Sacramento-San Joaquin Watershed Fishes

2. Prior CVPIA project numbers, titles, and programs: *(list only projects for which you are the contract manager)*

N/A

3. Have negotiations about contracts or contract amendments with this applicant proceeded smoothly, without persistent difficulties related to standard contract terms and conditions?

-Yes ☒No -N/A

If no, please explain any difficulties:

The Office of Vice Chancellor for Research at UC Davis has requested numerous and repeated requests for revisions of the standard contract terms. Reconciling these issues has required extensive staff time for CALFED and other State agencies. This repeated negotiation has delayed contracts for up to 2 years.

4. Are the status, progress, and accomplishments of the applicant's current CALFED or CVPIA project(s) accurately stated?

☒Yes -No -N/A

If no, please explain any inaccuracies:

5. Is the applicant's progress towards these project(s)' milestones and outcomes to date satisfactory?

☒Yes -No -N/A

If no, please explain deficiencies:

6. Is the applicant's reporting, records keeping, and financial management of these projects satisfactory?

☒Yes -No -N/A

If no, please explain deficiencies:

UC Davis has had consistent difficulty communicating internally and externally regarding its fiscal documentation. Reconciling financial issues with UC Davis has proved very problematic. The financial situations raised by UC Davis have proved to be the most difficult within the NFWF managed CALFED contracts.

7. Will the project(s) be ready for next phase funding in 2002, based on its current progress and expenditure rates?

XYes -No -N/A

If no, please explain:

Other Comments:

The difficulties expressed above are limited to UC Davis campus only.

The Principal Investigators, Joe Cech, and other project researches have been very professional and effective in meeting the goals of the project.

Prior Performance/Next Phase Funding: #3

New Proposal Number: 203

New Proposal Title: Improved Fish Screen Design and Operation for Native Sacramento-San Joaquin Watershed Fishes

1. Prior CALFED project numbers, titles, and programs: *(list only projects for which you are the contract manager)*
2. Prior CVPIA project numbers, titles, and programs: *(list only projects for which you are the contract manager)*

Biological Assessment of Green Sturgeon in the Sacramento-San Joaquin Watershed. Contract # 11332-1-G005

3. Have negotiations about contracts or contract amendments with this applicant proceeded smoothly, without persistent difficulties related to standard contract terms and conditions?

☒Yes -No -N/A

If no, please explain any difficulties:

4. Are the status, progress, and accomplishments of the applicant's current CALFED or CVPIA project(s) accurately stated?

-Yes ☒No -N/A

If no, please explain any inaccuracies:

The projects listed are described accurately, but applicant did not list Biological Assessment of Green Sturgeon in the Sacramento-San Joaquin Watershed. Contract # 11332-1-G005. This is a CVPIA/AFRP funded program.

5. Is the applicant's progress towards these project(s)' milestones and outcomes to date satisfactory?

☒Yes -No -N/A

If no, please explain deficiencies:

6. Is the applicant's reporting, records keeping, and financial management of these projects satisfactory?

☒Yes -No -N/A

If no, please explain deficiencies:

7. Will the project(s) be ready for next phase funding in 2002, based on its current progress and expenditure rates?

XYes -No -N/A

If no, please explain:

Other Comments:

Dealing with the University is sometimes difficult, but Dr. Cech communicates and manages well.

Environmental Compliance:

Proposal Number: 203

Applicant Organization: University of California, Davis

Proposal Title: Improved Fish Screen Design and Operation for Native Sacramento-San Joaquin Watershed Fishes

1. Are the legal or regulatory issues that affect the proposal identified adequately in the proposal?

-Yes **X**No

If no, please explain:

One of the target species is a state-listed species, so project proponents will need a 2081 as well as a scientific collecting permit.

2. Does the project's timeline and budget reflect adequate planning to address legal and regulatory issues that affect the proposal?

XYes -No

If no, please explain:

3. Do the legal and regulatory issues that affect the proposal significantly impair the project's feasibility?

-Yes **X**No

If yes, please explain:

As long as a 2081 permit is obtained, the project is feasible.

Other Comments:

Budget:

Proposal Number: 203

Applicant Organization: University of California, Davis

Proposal Title: Improved Fish Screen Design and Operation for Native Sacramento-San Joaquin Watershed Fishes

1. Does the proposal include a detailed budget for each year of requested support?

☒Yes ☐No

If no, please explain:

2. Does the proposal include a detailed budget for each task identified?

☒Yes ☐No

If no, please explain:

3. Does the proposal clearly state the type of expenses encompassed in indirect rates or overhead costs?

☒Yes ☐No

If no, please explain:

4. Are appropriate project management costs clearly identified?

☒Yes ☐No

If no, please explain:

5. Do the total funds requested (Form I, Question 17A) equal the combined total annual costs in the budget summary?

☐Yes ☒No

If no, please explain (for example, are costs to be reimbursed by cost share funds included in the budget summary).

Question 17a. = \$1,723,435, and the Budget Summary = \$1,723,851.

6. Does the budget justification adequately explain major expenses?

☒Yes ☐No

If no, please explain:

7. Are there other budget issues that warrant consideration?

-Yes ☒No

If yes, please explain:

Other Comments: